

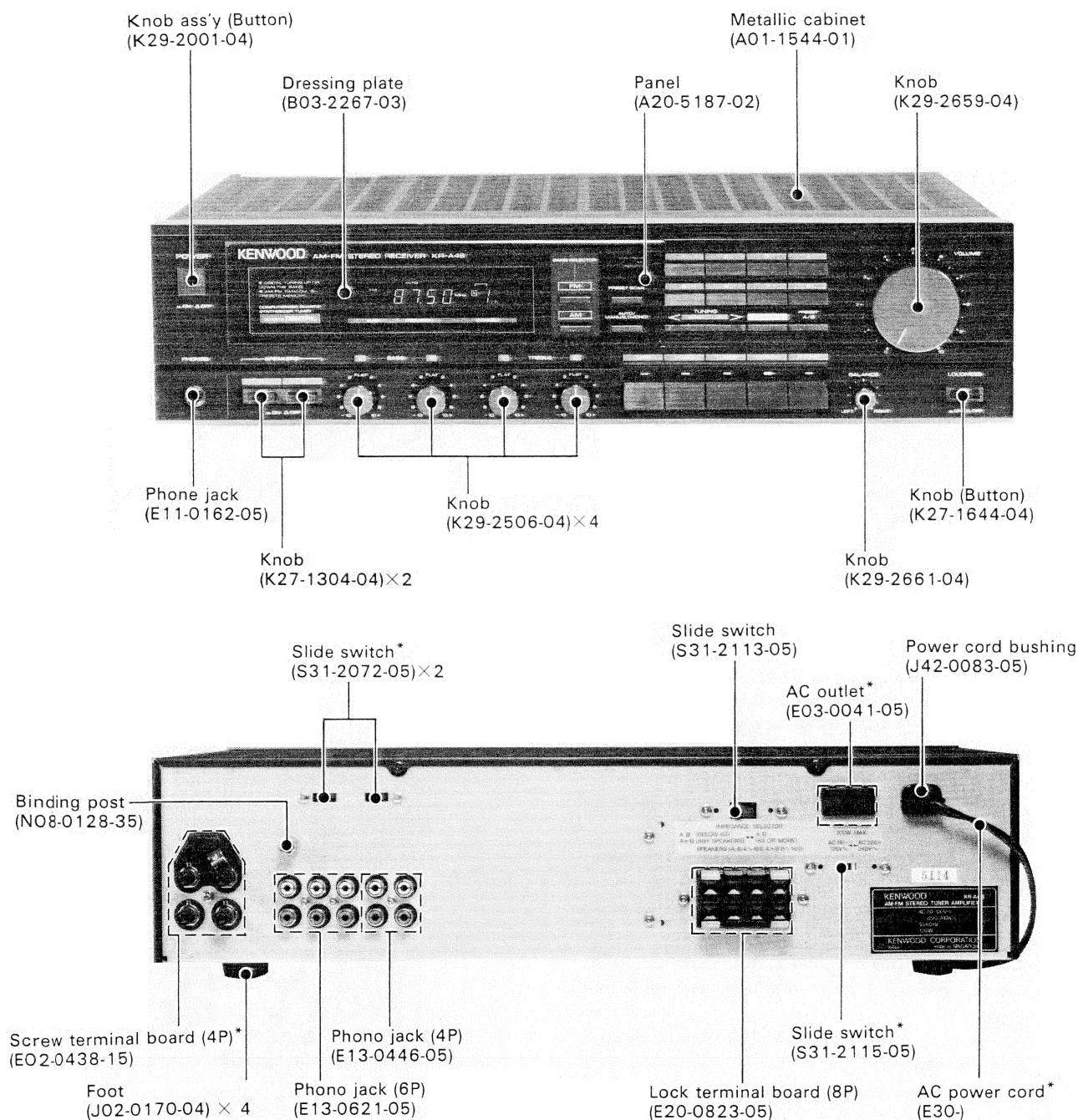
AM-FM STEREO RECEIVER

# KR-A46

## SERVICE MANUAL

# KENWOOD

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B51-3208-00 (G) 2238



\* Refer to parts list on page 28.

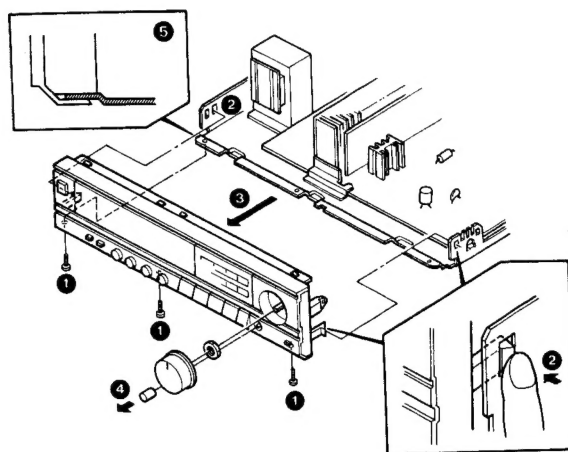
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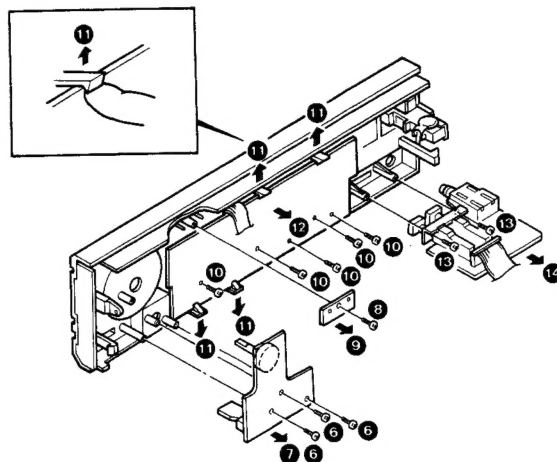
## DISASSEMBLY FOR REPAIR

(Remove the metallic cabinet before performing the following operations.)

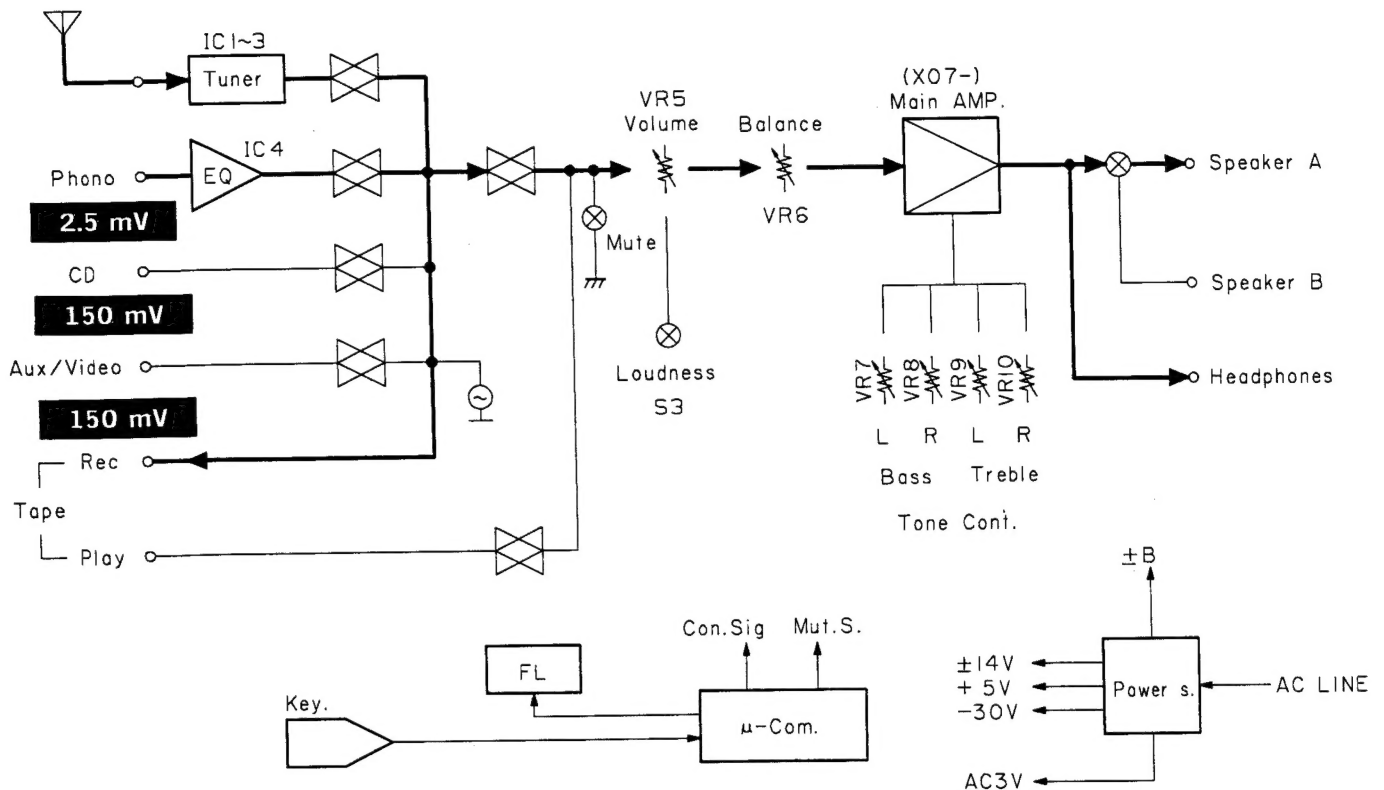
1. Remove the 3 screws fixing the front panel to the chassis (1).
2. Disengage the 2 claws of the sub panel from the chassis (2).
3. Remove the front panel together with the sub panel in the direction of the arrow (3).
4. Pull out the 2 knobs of the VOLUME and BALANCE from the shafts, and remove the hex. nut from the VOLUME shaft (4).
5. When installing the front panel, pay attention to the mounting position related to the chassis (5).



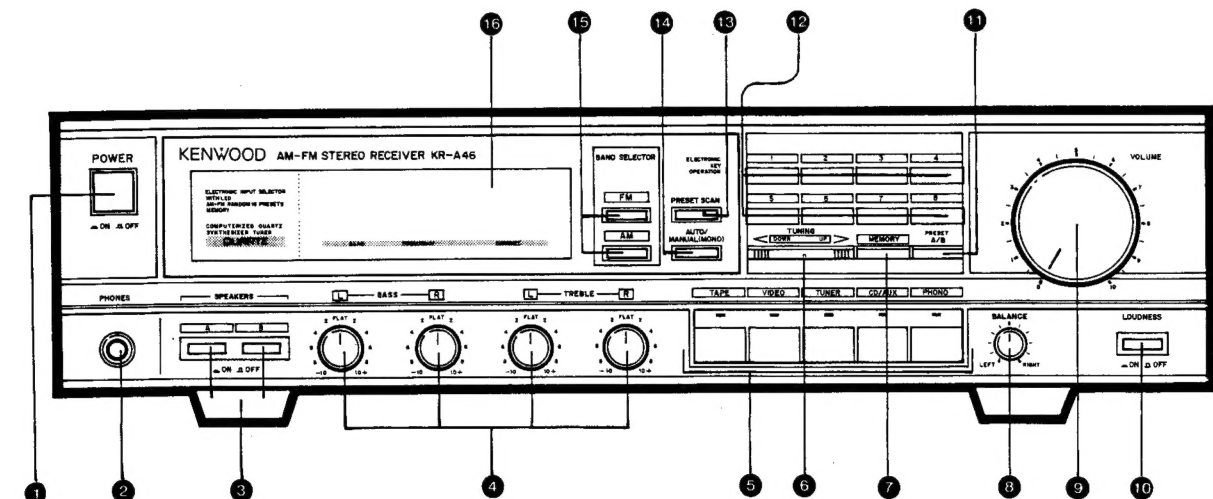
6. Remove the 3 screws fixing the Receiver Unit (X14-2180-10) (B/8) to the sub panel (6).
7. Remove the Receiver Unit (X14-) (B/8) in the direction of the arrow (7).
8. Remove the screw fixing the Receiver Unit (X14-) (H/8) to the sub panel (8).
9. Remove the Receiver Unit (X14-) (H/8) in the direction of the arrow (9).
10. Remove the 5 screws fixing the Receiver Unit (X14-) (G/8) to the sub panel (10).
11. Disengage the 4 claws (upper side: 2, lower side: 2) of the sub panel which retain the Receiver Unit (X14-) (G/8) (11).
12. Remove the Receiver Unit (X14-) (G/8) in the direction of the arrow (12).
13. Remove the 2 screws fixing the multiple push switch (S4) to the sub panel (13).
14. Remove the multiple push switch (S4) together with the Receiver Unit (X14-) (C/8) in the direction of the arrow (14).



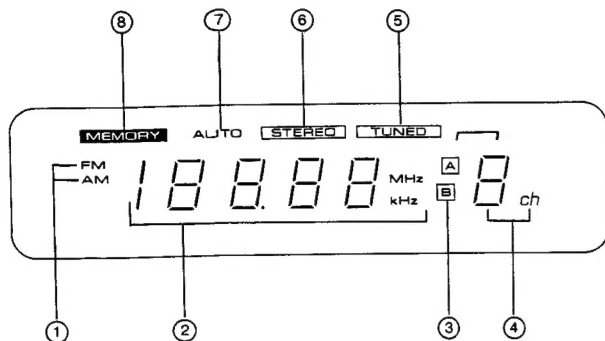
## BLOCK & LEVEL DIAGRAM



## CONTROLS, INDICATORS AND CONNECTORS



- |                             |   |
|-----------------------------|---|
| ① POWER switch              | ⑨ VOLUME control                                |
| ② PHONES jack               | ⑩ LOUDNESS switch                               |
| ③ SPEAKERS A and B switches | ⑪ PRESET A/B selector switch                    |
| ④ Tone controls             | ⑫ Preset channel keys                           |
| ⑤ Input selectors           | ⑬ PRESET SCAN key                               |
| ⑥ TUNING key                | ⑭ AUTO/MANUAL (MONO) switch                     |
| ⑦ MEMORY key                | ⑮ BAND SELECTOR switches                        |
| ⑧ BALANCE control           | ⑯ Digital frequency counter and channel display |



- ① Band indicators
- ② Frequency display
- ③ Preset A/B selector indicators
- ④ Preset channel indicators
- ⑤ TUNED indicator
- ⑥ STEREO indicator
- ⑦ AUTO indicator
- ⑧ MEMORY indicator

## CIRCUIT DESCRIPTION

### Function of components

#### Receiver unit (X14-2180-10)

Components	Use/Function	Operation/Condition/Interchangeability
Q1	FM IF amp	
Q2	Buffer amp	
Q3, 4	L.P.F.	Tuning voltage.
Q5, 6	FM +B control	
Q7, 8	AM +B control	
Q9, 10	Temperature compensation	
Q11 ~ 14	Power transistor	Darlington circuit.
Q15 ~ 18	Muting	
Q19	Muting control	
Q20	Indication driver	STEREO display.
Q21	Indication driver	TUNED display.
Q22	Channel space selection	On: 9kHz, 50kHz, OFF: 10kHz, 100kHz.
Q23	LED driver	For phono.
Q24, 25	Constant voltage circuit	+14, darlington circuit.
Q26	Error amplifier	+14V.
Q27	Constant voltage circuit	+5V.
Q28	Interrupting control	+5V.
Q29	Constant voltage circuit	-24V.
IC1	IF detector	
IC2	PLL	
IC3	FM MPX	
IC4	Op amp	
IC5	Input selector	
IC6	Microcomputer	

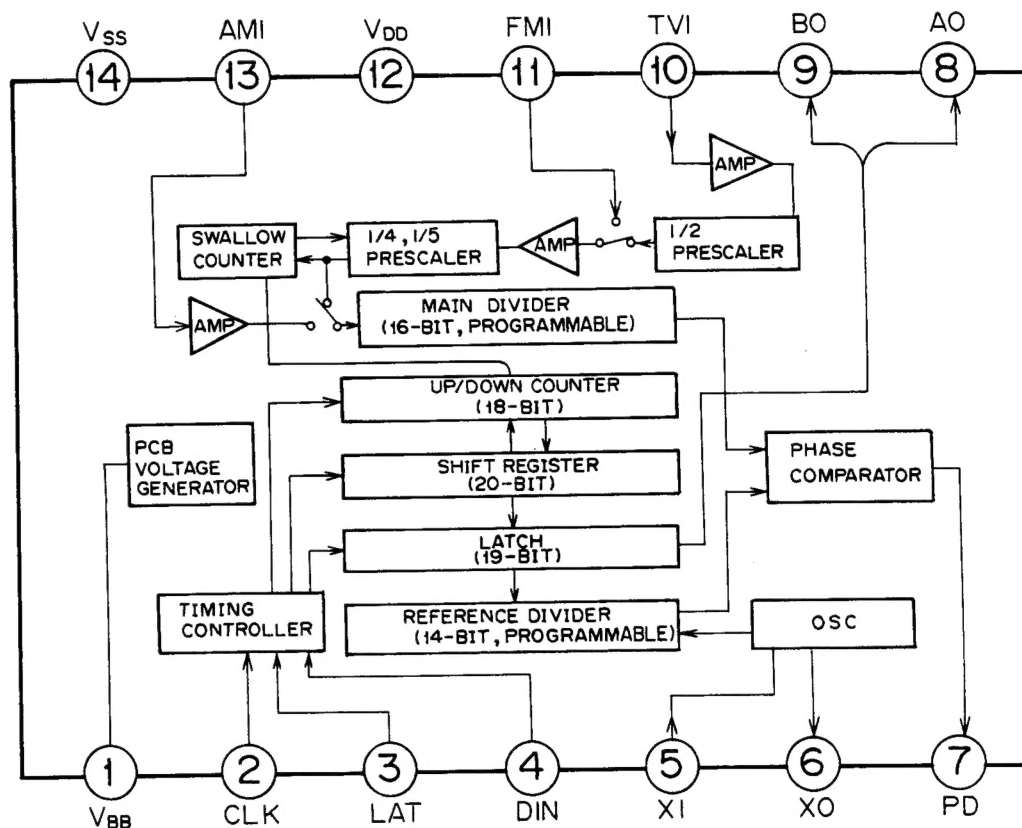
#### Power amplifier unit (X07-2360-10)

Components	Use/Function	Operation/Condition/Interchangeability
Q1 ~ 4	Differential amp	First stage.
Q5 ~ 8	Differential amp	Class A amplifier.
Q9, 10	Regulated power supply	Current Miller.
Q11 ~ 14	Predriver	Darlington.
Q15, 16	Protection	Current detection.
Q17	Protection	Driver.
Q18	Muting control	Switching ON/OFF of positive power supply for the first stage.
Q19	Ripple filter	



## IC2: CX7925B Frequency Synthesizer PLL IC

Block diagram and terminal configuration diagram



### Terminal description

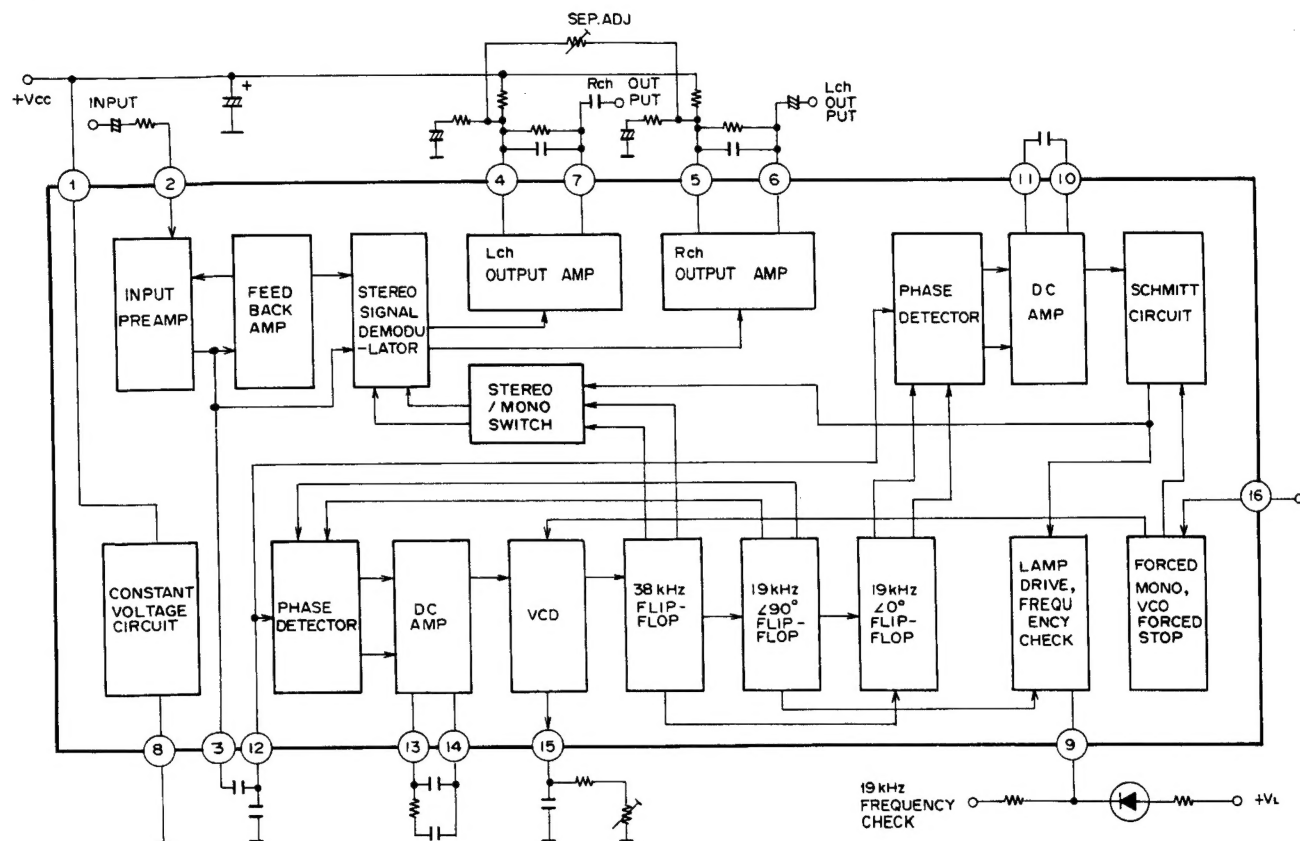
Terminal No.	Symbol	Terminal Description
1	V <sub>BB</sub>	PCB terminal (Connect a 0.01 $\mu$ F capacitor between the GND).
2	CLK	Input terminal for the clock used for 20-bit serial data input (Shifted at the rise).
3	LAT	Input terminal for the shift register input data latch signal (shifted at the rise) and, at the same time, for the Up/Down clock (status changed at the rise).
4	DIN	Data input terminal, also the Up/Down mode switching terminal (Up mode with "H" level, Down mode with "L" level).
5	XI	Connection terminals for the reference signal generator X'tal oscillator. (Max. 13 MHz, standard 4.0 MHz)
6	XO	
7	PD	Phase comparator output terminal (3-state).
8	AO	External control signal output terminal/Unlock signal output terminal (E/E MOS push-pull).
9	BO	External control signal output terminal/data check terminal (E/E MOS push-pull).
10	TVI	High-frequency signal input terminal (300 MHz or 350 MHz max.). With 1/2 prescaler.
11	FMI	High-frequency signal input terminal (150 MHz or 180 MHz max.).
12	V <sub>DD</sub>	Power supply (+5V).
13	AMI	High-frequency signal input terminal (40 MHz or 50 MHz max.).
14	V <sub>SS</sub>	Grounding terminal.

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IC3: AN7470

FM MPX IC

Equivalent block diagram

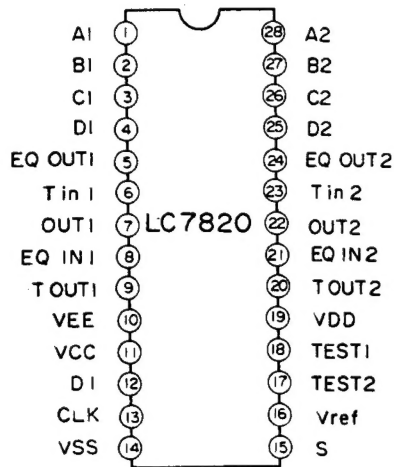


## Terminal connection and functions

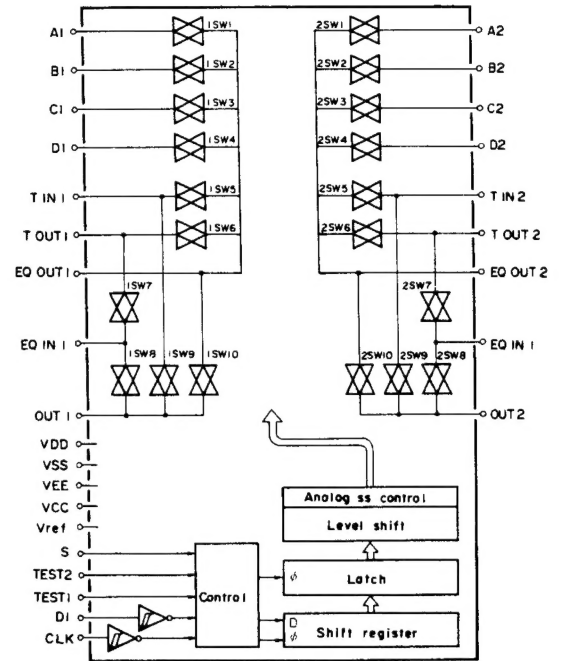
Terminal No.	Connection/Function
1	Supply voltage (+Vcc)
2	Stereo composite signal, input terminal
3	Input preamp, output terminal
4	L CH output amp, feedback terminal
5	R CH output amp, feedback terminal
6	R CH output amp, output terminal
7	L CH output amp, output terminal
8	Grounding terminal
9	Stereo display lamp drive and 19 kHz frequency check terminal
10	Stereo signal detector circuit, low-pass filter terminal
11	Stereo signal detector circuit, low-pass filter terminal
12	PLL circuit, input terminal
13	PLL circuit, low-pass filter terminal
14	PLL circuit, low-pass filter terminal
15	VCO freerun oscillation frequency adjustment terminal
16	Forced mono/forced VCO oscillation stop terminal

## IC5: LC7820 Input selector IC




### Pin connection



### Equivalent block diagram



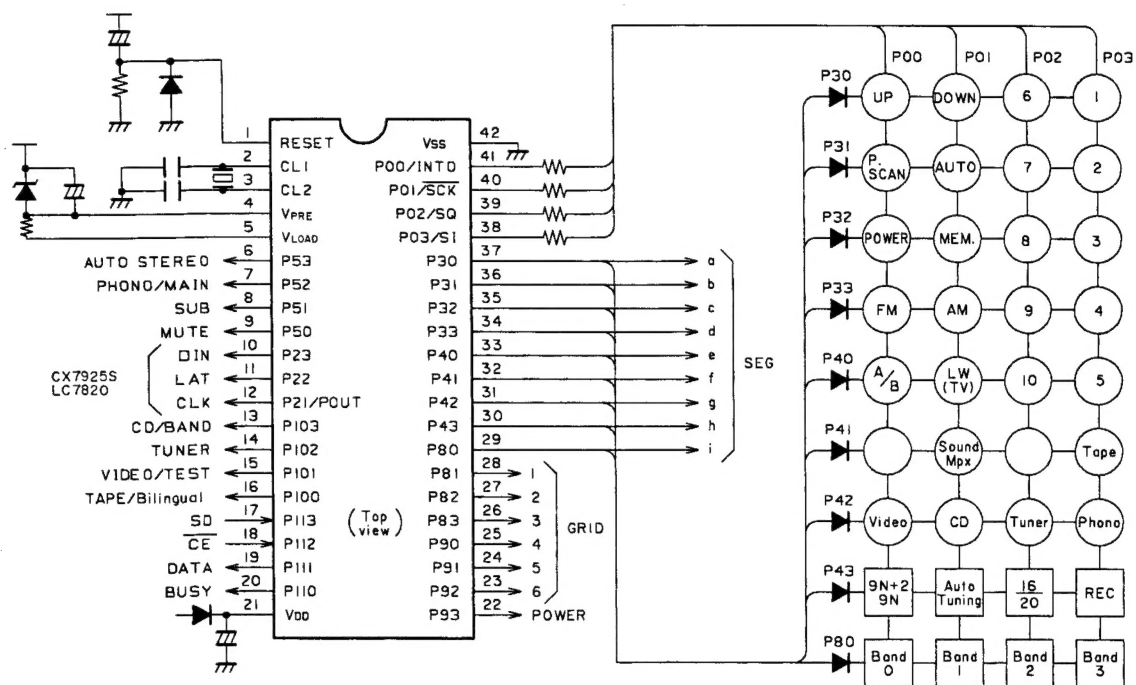
### Explanation of terminals

Name	Pin no.	Pin type	Function						
VDD	19		Power supply pin, +18V-type. Power supply for audio signal.						
Vref	16		Power supply pin, VDD 5V-type. For internal logic drive.						
VSS	14		Power supply pin, 0V.						
VEE	10		Power supply pin, −18V-type. Power supply for audio signal.						
VCC	11		Power supply pin, +5V-type. For input logic.Io						
DI	12		● Input pin for data from CPU. ● Schmitt inverter type.						
CLK	13		● Input pin for CLK signal from CPU. ● Schmitt inverter type.						
A 1, 2 B 1, 2 C 1, 2 D 1, 2 T in 1, 2 EQin 1, 2	1, 28 2, 27 3, 26 4, 25 6, 23 8, 21	1, 2SWn   A 1, 2 B 1, 2 C 1, 2 D 1, 2 T out 1, 2 EQ out 1, 2 OUT 1, 2	Audio signal input pin. Simultaneous operation in 1SWn, 2SWn.						
OUT 1, 2 T out 1, 2 EQ out 1, 2	7, 22 9, 20 5, 24		Audio signal output pin.						
S	15		Select pin when two ICs are used. <table><tr><td>S</td><td>key code</td></tr><tr><td>0</td><td>7D2</td></tr><tr><td>1</td><td>7D3</td></tr></table>	S	key code	0	7D2	1	7D3
S	key code								
0	7D2								
1	7D3								

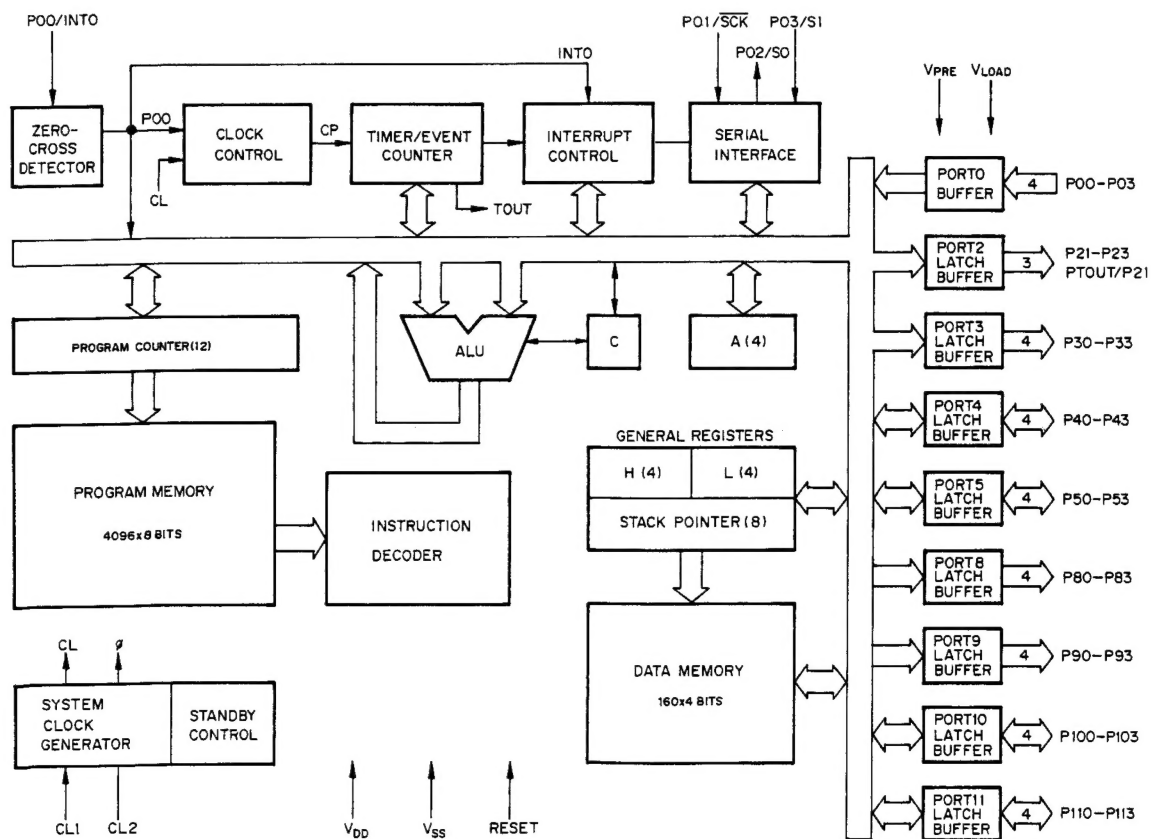
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## IC6: $\mu$ PD 7538AC-041 Microprocessor IC

Terminal connection diagram & key matrix connection



### Block diagram



## Function of the diode switch

### 1. Models for each designated area and function setting switches

Model for designated area	Set switch				BAND	Receiving frequency range	Channel spacing	Reference frequency	Middle frequency
	Band 3	Band 2	Band 1	Band 0					
K	1	0	0	0	FM	87.5 ~ 108 MHz	100 kHz	50 kHz	10.7 MHz
					AM	530 ~ 1610 MHz	10 kHz	10 kHz	450 kHz
E	1	1	0	1	FM	87.5 ~ 108 MHz	50 kHz	50 kHz	10.7 MHz
					MW	531 ~ 1602 kHz	9 kHz	9 kHz	450 kHz
					LW	153 ~ 281 kHz	1 kHz	1 kHz	450 kHz
M	1	1/0	0	0	FM AM	K type or E type (without LW)			

- Band 3    H Overseas  
             L Domestic (Japan)
- Band 2    H FMch space 50 kHz & AMch space 9 kHz  
             L FMch space 100 kHz & AMch space 10 kHz
- Band 1    H Without auto tuning function only for LW broadcast
- Band 0    H With LW: Indication (FM, MW, LW)  
             L Without LW: Indication (FM, AM)  
             LW key is not accepted.

### 2. Stop frequency select switch for auto tuning in LW reception

This switch is used to set the frequency which intakes the SD signal in LW band reception. For both manual and auto tuning, the tuning frequency is changed up or down in 1 kHz step, however, in auto tuning mode, the receiving frequency stops at the following frequency selected by this switch.

- Setting of this switch can be changed without resetting (unplugging/plugging the AC cord.)

9N+2 / 9N	Frequency range	Channel spacing	Reference frequency	Middle frequency	Stop frequency
1	153 ~ 281 kHz	1 kHz	1 kHz	450 kHz	155, 164 ..... 272, 281 kHz
0	153 ~ 281 kHz	1 kHz	1 kHz	450 kHz	153, 162 ..... 270, 279 kHz

### 3. Auto tuning

Auto tuning	Auto tuning function	Auto/Mono KEY
1	Not available	Mono/Stereo function only
0	Available	This key is also used as the Auto/Manual tuning mode key.

### 4. Others

Set switch	Function
0	Preset 16
1	Preset 20
0	KT-56
1	KR-A46

## Port allocation

Port		Pin No.	I/O Mode	Active Mode	Function
P0	0	41	I	H	Key return signal input
	1	40	I	H	Key return signal input
	2	39	I	H	Key return signal input
	3	38	I	H	Key return signal input
P2	1	12	O	H	PLL IC (CX7925B) Function SW (LC7820)      Data output
	2	11	O	H	PLL IC (CX7925B)      LAT output
	3	10	O	H	PLL IC (CX7925B) Function SW (LC7820)      CLK output
P3	0	37	O	H	Key strobe signal output, FL display segment output: a
	1	36	O	H	Key strobe signal output, FL display segment output: b
	2	35	O	H	Key strobe signal output, FL display segment output: c
	3	34	O	H	Key strobe signal output, FL display segment output: d
P4	0	33	O	H	Key strobe signal output, FL display segment output: e
	1	32	O	H	Key strobe signal output, FL display segment output: f
	2	31	O	H	Key strobe signal output, FL display segment output: g
	3	30	O	H	Key strobe signal output, FL display segment output: h
P8	0	29	O	H	Key strobe signal output, FL display segment output: i
	1	28	O	H	FL display digit control pin: GRID 1
	2	27	O	H	FL display digit control pin: GRID 2
	3	26	O	H	FL display digit control pin: GRID 3
VDD		21	——	——	Power supply input pin (5V)
VSS		42	——	——	GND
P9	0	25	O	H	FL display digit control pin: GRID 4
	1	24	O	H	FL display digit control pin: GRID 5
	2	23	O	H	FL display digit control pin: GRID 6
	3	22	O	H	Power pin
P10	0	16	O	H	Input port: TV mode "Bilingual" pin (H) Output port: Receiver selector "TAPE"
	1	15	O	H	Input port: TEST pin (H) Output port: Receiver selector "VIDEO"
	2	14	O	H	Receiver selector "TUNER"
	3	13	O	H	Receiver design: Receiver selector "CD" System component design: Band data output (UHF: H)
P11	0	20	I/O	H	Serial signal BUSY pin
	1	19	I/O	H	Serial signal DATA pin
	2	18	I	L	Back up detection pin
	3	17	I	H	Station detection pin for auto tuning mode
P5	0	9	O	H	Muting signal
	1	8	O	H	TV SUB pin
	2	7	O	H	Receiver design: Receiver selector "PHONO" System component design: TV MAIN pin
	3	6	O	H	MONO/ST key to control      Stereo (L) Mono (H)
RESET		1	I	H	Reset signal
CL1		2	——	——	Clock
CL2		3	——	——	Clock
VPRE		4	——	——	Power supply for FL display pre-driver
VLOAD		5	——	——	Power supply for FL display driver (—30V)



## Key matrix layout

Input Output	P00 (41)	P01 (40)	P02 (39)	P03 (38)
P30 (37)	UP	DOWN	6	1
P31 (36)	Preset Scan	AUTO MONO	7	2
P32 (35)	Power	Memory	8	3
P33 (34)	FM	AM	9	4
P40 (33)	A/B	LW (TV)	10	5
P41 (32)		Sound multiplex		Tape
P42 (31)	Video	CD	Tuner	Phono
P43 (30)	9N + 2 9N	*Auto tuning	*16 Preset 20 Preset	*Syscon Receiver
P80 (29)	*Band 0	*Band 1	*Band 2	*Band 3

- Values in brackets ( ) shows the pin number of microcomputer.
- Items with an asterisk (\*) shows the diode switch. Others are momentary switches.
- LW (9N+2/9N) is the slide switch on the rear panel.
- Key-intake is active high.

## Tuner function

### 1. Manual tuning

Each time the UP/DOWN key is pressed, the tuning frequency is varied one step higher or lower. When this key is kept pressed for more than 0.5 seconds, the frequency is changed up or down at approx. 128 msec/step (approx. 224 msec/step for TV reception) until the key is released.

### 2. Auto tuning

When the AUTO/MONO switch is set to AUTO, pressing the UP/DOWN key starts auto tuning. The tuning frequency is changed up or down at approx. 128 msec/step (approx. 224 msec/step for TV reception) until the high-level signal is input to the SD pin. When the high-level signal is input, auto tuning operation stops.

### 3. Preset memory

Up to 16 or 20 frequencies (the maximum number of preset stations is set by the diode switch) can be preset randomly for FM, MW (AM) and LW (TV) stations.

#### a) How to preset

When the MEMORY key is pressed, the "MEMORY" indicator lights and the unit is set to the write-enable status. Writing to memory is possible for approx. 5 seconds after the MEMORY key is pressed. During this time, pressing any of the numeric key (1 – 10) will write the currently-received frequency into memory corresponding to the key pressed.

#### b) How to recall

When the tuner functions, pressing any of the preset keys will recall the stored contents corresponding to the key pressed.

### 4. Preset scan

When the PRESET SCAN key is pressed, the SD pin goes high level. A preset channel is received for 5

## Test frequency

Type	Preset Ch	1	2	3	4	5	6	7	8
K	A	FM							
		87.5	89.1	98.0	106.0	108.0	87.5	87.5	87.5
	B	AM							
		530	630	990	1440	1610	87.5	87.5	87.5
E	A	FM				AM			
		87.5	89.1	98.0	106.0	108.0	531	630	990
	B	AM		LW				FM	
		1440	1602	153	162	216	270	281	87.5

### ● Test mode set-up: :

Set the test pin (P15) to high level, and invert it to low level after turning the power ON. (The entire FL display will light except for MEMORY.)

seconds, then the receiving frequency is changed to the next preset channel. When the SD pin is low level, the receiving channel is changed to the next preset channel after one second.

#### a) Key processing during scanning

- Preset key: Stops the scanning operation and receives the frequency of the designated preset channel.
- UP/DOWN key: Stops the scanning operation and processes the UP/DOWN function.

## Function of tact switches

Name	Function																
POWER	Power ON/OFF key. Each time this key is pressed, the Power pin is inverted. When the POWER switch is turned ON, the Power pin goes high level and the last channel (which is received when the power switch is turned off) is recalled. When the POWER switch is turned OFF, the Power pin goes low level and no indication will be displayed.																
FM AM (MW) LW (TV)	Band select key for FM, AM (MW) and LW (TV). The reference data and the program data corresponding to the selected band will be transmitted to the PLL IC. However, if the band which is the same as that currently selected is selected, the command is not accepted.																
UP DOWN	Frequency up/down key. <ul style="list-style-type: none"><li>● Auto tuning When this key is pressed, the frequency is changing to the higher or lower scale at approx. 128 msec/step in the square mode. When the high-level signal is input to the SD pin, auto tuning operation is stopped and that frequency is received.</li><li>● Manual tuning Each time this key is pressed, the frequency is changed up/down by one step (channel spacing). When it is kept pressed for more than 0.5 seconds, the frequency is changed at approx. 128 msec/step until the key is released.</li></ul>																
Numeric keys (1 – 8) (numeric keys (1 – 10) for 20-memory model) MEMORY	<ul style="list-style-type: none"><li>● Write key (during Memory indicator is lit). During approx. 5 seconds after the MEMORY key is pressed, pressing any of the numeric keys 1 – 8 (or 1 – 10) will write the frequency and the band which are currently received into the memory corresponding to the key pressed.</li><li>● Recall (when Memory indicator is not lit) When any of the numeric keys 1 – 8 (or 1 – 10) is pressed, the memorized contents (band and frequency) corresponding to the key pressed will be recalled. When the VDD signal is initially input, the lowest frequency in the preset memories will be recalled for each band.</li></ul>																
AUTO	Auto/Mono select key for FM broadcast. Each time this key is pressed, the FM reception mode alternates between Auto and Mono. The Auto indicator lights and the Auto/Mono pin is inverted. <ul style="list-style-type: none"><li>● When auto tuning is available, this key is also used for the auto/manual tuning mode select key.</li><li>● When this key is pressed during auto tuning, auto tuning operation stops and the manual tuning mode resumes.</li></ul>																
Preset Scan	When this key is pressed, the preset channel (1 – 8 or 1 – 10) is scanned sequentially. When the receiving frequency is stored in memory, its contents (frequency and band) is recalled and received for approx. 5 seconds, then the next channel is received. When the receiving frequency is not stored in memory, the next channel is received after 1 second.																
MAIN SUB	Sub Audio Program (bilingual audio channel) mode select key for TV broadcast (MAIN/SUB/BOTH). Each time the key is pressed, the SAP mode is changed in the order MAIN → SUB → BOTH, then MAIN resumes. The indication and the pin status for each mode are as follows: <table><tr><td>Mode</td><td>Indication</td><td>Port (Main)</td><td>Port (Sub)</td></tr><tr><td>MAIN</td><td>MAIN</td><td>H</td><td>L</td></tr><tr><td>SUB</td><td>SUB</td><td>L</td><td>L</td></tr><tr><td>BOTH</td><td>MAIN SUB</td><td>L</td><td>H</td></tr></table> <p>This key is effective only when the band is set to the TV position. When set to another position, the MAIN or SUB indication will go off.</p>	Mode	Indication	Port (Main)	Port (Sub)	MAIN	MAIN	H	L	SUB	SUB	L	L	BOTH	MAIN SUB	L	H
Mode	Indication	Port (Main)	Port (Sub)														
MAIN	MAIN	H	L														
SUB	SUB	L	L														
BOTH	MAIN SUB	L	H														

Name	Function
A/B	Each time the key is pressed, the preset group is alternated between A preset (1 – 8 or 1 – 10) and B preset (1 – 8 or 1 – 10) for recalling or storing. When pressed in the memory write mode, the writing time is set to 5 seconds after pressing the key.
TUNER CD PHONO VIDEO	<p>Used only when the unit is set to the receiver mode. By pressing any of these select keys, the data is transmitted to the Selector IC and the input source is changed.</p> <ul style="list-style-type: none"> <li>● Keys related with the Tuner (except for the Preset and Band keys) are not accepted other than when the input selector is set to TUNER.</li> <li>● When any input source other than TUNER is selected, pressing the Band key or Preset key will change the selector to TUNER.</li> <li>● When the input selector which is the same as the current source is selected, muting does not function.</li> </ul>
TAPE	<p>Tape monitor key.</p> <ul style="list-style-type: none"> <li>● When pressed, the input source indicator LED (TUNER, CD, PHONO or VIDEO) is not changed but the Selector IC is changed.</li> <li>● When the Preset Scan or Frequency Scan is engaged with the selector TUNER selected, pressing this key does not stop the scanning operation.</li> </ul>

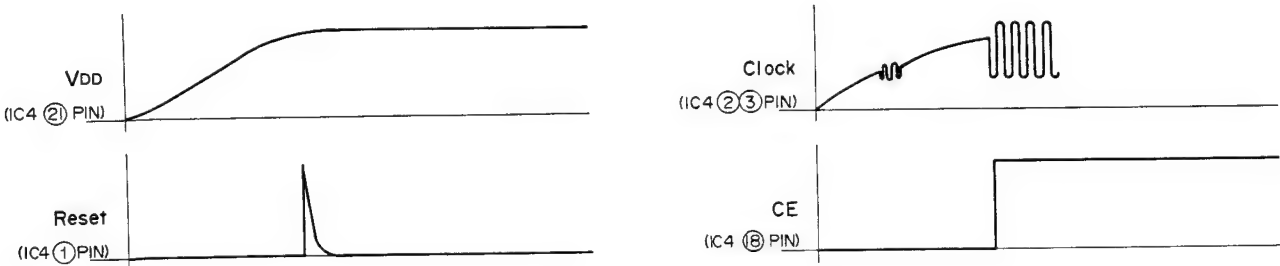
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## Clear function of microprocessor IC6

To reset the microprocessor IC4, reconnect the power cord while pressing the MEMORY button.

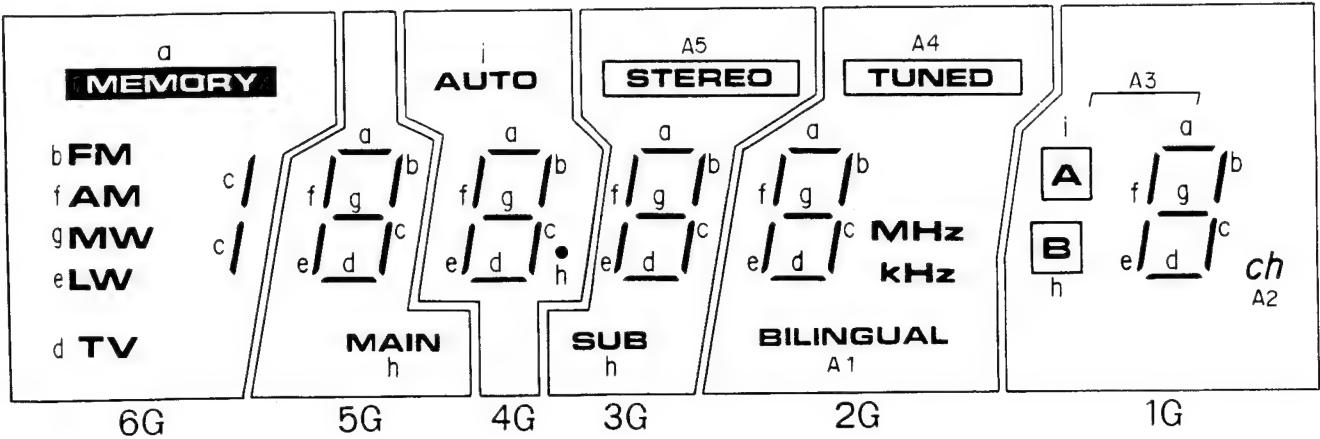
## Operation of microprocessor IC6 at power ON

When voltage VDD at pin 21 (power supply) of IC4 is rises at power ON and the reset signal at pin 1 differentiated by CE signal (Chip Enable signal) at pin 18 rises to half of VDD, the clock starts. When the reset signal lowers to half of the VDD, the microprocessor starts operating and the unit is set to normal operation mode.



## Fluorescent indicator tube FL1: FIP8BRM7A (X14-2180-10)

Terminal connection



Terminal No. Electrode	1 F	2 F	3 6G	4 NP	5 NP	6 6G	7 P(A5)	8 P(A4)	9 5G	10 P(A3)	11 P(A2)	12 4G	13 P(A1)	14 3G	15 P(i)					
Terminal No. Electrode						16 P(h)	17 P(g)	18 2G	19 P(f)	20 P(e)	21 2G	22 P(d)	23 1G	24 P(c)	25 P(b)	26 P(a)	27 1G	28 NP	29 F	30 F

**Notes** F: Filament P: Anode  
G: Grid NP: No pin

## ADJUSTMENT

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	TUNER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
<b>FM SECTION</b>		SELECTOR: FM					
1	DETECTOR	(A) 98.0MHz 1kHz, ±75kHz dev 60dBμ(Ant input)	Connect a DC voltmeter between TP2 and TP3.	AUTO or MONO 98.0MHz	L5 (X14-)	0V	(a)
2	VCO	(A) 98.0MHz 0 dev 100dBμ(Ant input)	Connect a frequency counter between TP6 and GND.	AUTO 98.0MHz	VR4 (X14-)	76.00kHz	(b)
3	SEPARATION (E Type)	(C) 98.0MHz Stereo signal 60dBμ(Ant input)	(B)	AUTO 98.0MHz	VR3 (X14-)	Minimum crosstalk.	
4	TUNING LEVEL	(A) 98.0MHz 0 dev 18dBμ(Ant input) 300Ω 14dBμ(Ant input) 75Ω	(B)	AUTO or MONO 98.0MHz	VR1 (X14-)	Adjust VR1 and stop at the point where FL1(TUNED) goes on.	
<b>AM SECTION</b>		Keep the AM loop antenna installed. SELECTOR: AM					
(1)	BAND EDGE (Low)	—	Connect a DC voltmeter between TP7(GND) and TP8.	—	L3 (X14-)	1.5V	(c)
(2)	BAND EDGE (High)	—	Connect a DC voltmeter between TP7(GND) and TP8.	—	TC2 (X14-)	8.0V	(c)
Repeat alignments (1) and (2) several times.							
(3)	RF ALIGNMENT (1)	(D) 600kHz 20dBμ(Ant input)	(B)	—	L2 (X14-)	Maximum amplitude and symmetry of the oscilloscope display.	
(4)	RF ALIGNMENT (2)	(D) 1400kHz 20dBμ(Ant input)	(B)	—	TC1 (X14-)	Maximum amplitude and symmetry of the oscilloscope display.	
Repeat alignments (3) and (4) several times.							
(5)	IF TRANSFORMER	(D) 1000kHz 20dBμ(Ant input)	(B)	—	L6 (X14-)	Maximum amplitude and symmetry of the oscilloscope display.	
(6)	TUNING LEVEL	(D) 1000kHz 36dBμ(Ant input)	(B)	—	VR2 (X14-)	Adjust VR2 and stop at the point where FL1(TUNED) goes on.	
<b>AUDIO SECTION</b>							
[1]	IDLE CURRENT	—	(E) Connect a DC voltmeter across CP1(L) CP2(R)	Volume: 0	VR1(L) VR2(R) (X07-)	13mV	(d)

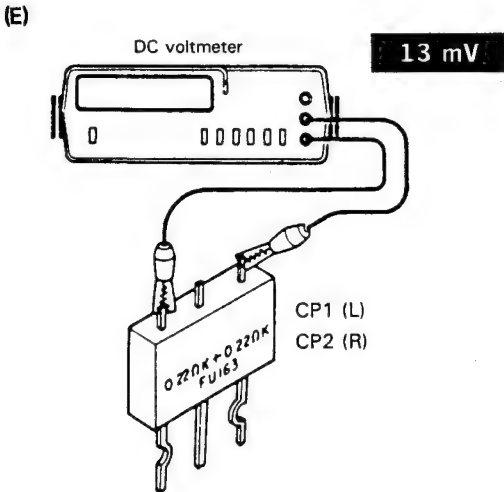
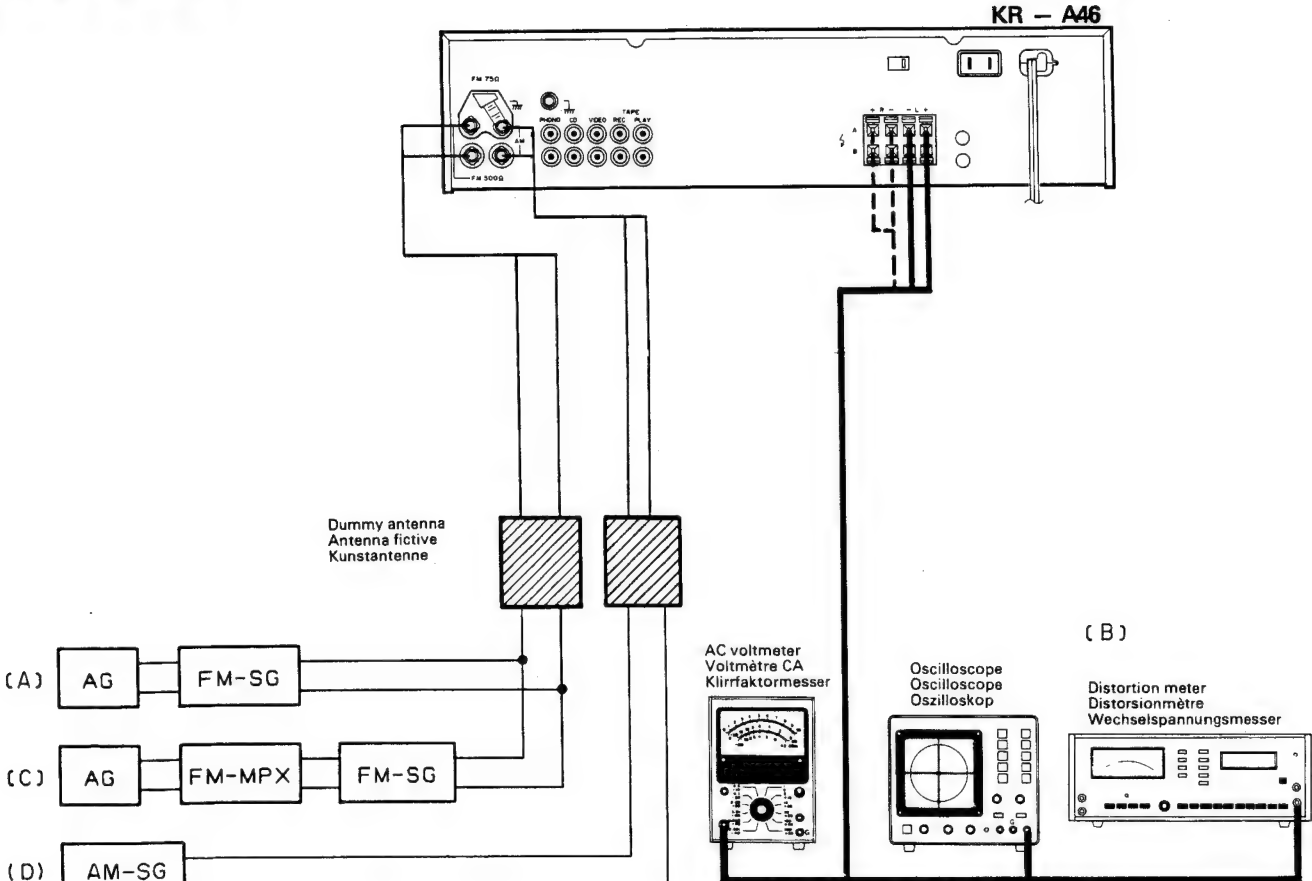
## REGLAGE

N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DU TUNER	POINT DE L'ALIGNEMENT	ALIGNER POUR	FIG.
SECTION MF		SELECTEUR : FM					
1	DETECTEUR	(A) 98,0MHz 1kHz.±75kHz dév 60dBμ(Entrée ANT)	Relier un voltmètre CC entre les TP2 et TP3.	AUTO ou MONO 98,0MHz	L5 (X14-)	0V	(a)
2	OSCILLATEUR CONTROLE PAR LA TENSION	(A) 98,0MHz 0 dév 100dBμ(Entrée ANT)	Relier un compteur de fréquence entre les TP6 et GND.	AUTO 98,0MHz	VR4 (X14-)	76,00kHz	(b)
3	SEPARATION (E type)	(C) 98,0MHz Signal stéréo 60dBμ(Entrée ANT)	(B)	AUTO 98,0MHz	VR3 (X14-)	Diaphonie minimale.	
4	NIVEAU D' ACCORDER	(A) 98,0MHz 0 dév 18dBμ(Entrée ANT) 300Ω 14dBμ(Entrée ANT) 75Ω	—	AUTO ou MONO 98,0MHz	VR1 (X14-)	Ajuster VR1 et arrêter le mouvement de VR1 au moment où le FL1(TUNED)s'allume.	
SECTION MA		Laisser l'antenne bouche MA installée. SELECTEUR: AM					
(1)	BORD DE BANDE (Bas)	—	Relier un voltmètre entre les TP7(GND) et TP8.	—	L3 (X14-)	1,5V	(c)
(2)	BORD DE BANDE (Haut)	—	Relier un voltmètre entre les TP7(GND) et TP8.	—	TC2 (X14-)	8,0V	(c)
Répéter les points (1) et (2) plusieurs fois.							
(3)	ALIGNEMENT H.T. (1)	(D) 600kHz 20dBμ(Entrée ANT)	(B)	—	L2 (X14-)	Amplitude et symétrie maximale de l'affichage de l'oscilloscope.	
(4)	ALIGNEMENT H.T. (2)	(D) 1400kHz 20dBμ(Entrée ANT)	(B)	—	TC1 (X14-)	Amplitude et symétrie maximale de l'affichage de l'oscilloscope.	
Répéter les points (3) et (4) plusieurs fois.							
(5)	TRANSFORMATEUR F.I.	(D) 1000kHz 20dBμ(Entrée ANT)	(B)	—	L6 (X14-)	Amplitude et symétrie maximale de l'affichage de l'oscilloscope.	
(6)	NIVEAU D' ACCORDER	(A) 1000kHz 36dBμ(Entrée ANT)	—	—	VR2 (X14-)	Ajuster VR2 et arrêter le mouvement de VR2 au moment où le FL1(TUNED)s'allume.	
SECTION AUDIO							
[1]	COURANA DE POLARISATION	—	(E) Connecter un voltmètre CC sur CP1(L) CP2(R)	Volume: 0	VR1(G) VR2(D) (X07-)	13mV	(d)



## ABGIEICH

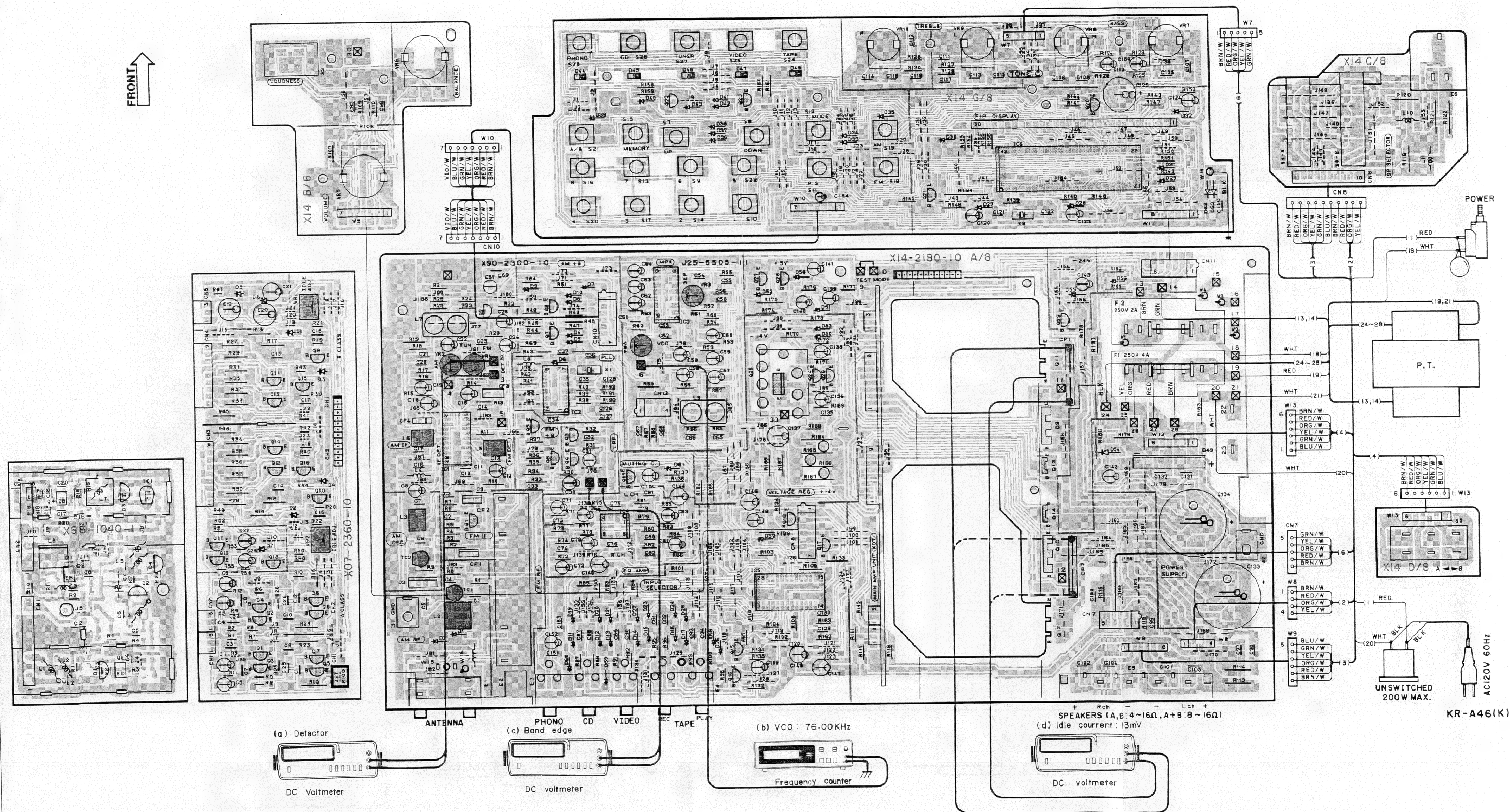
NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	TUNER-EINSTELLUNG	ABGLEICH-PUNKTE	ABGLEICHEN FÜR	ABB.
UKW-EMPfangSABTEILUNG WÄHLER: FM							
1	DETEKTOR	(A) 98,0MHz 1kHz.±75kHz Hub 60dBμ(ANT-Eingang)	Einen Gleichspannungs- messer zwischen TP2 und TP3 anschließen.	AUTO oder MONO 98,0MHz	L5 (X14-)	0V	(a)
2	SPANNUNGS- GEREGELTER OSZILLATOR	(A) 98,0MHz 0 Hub 100dBμ(ANT-Eingang)	Einen Frequenzzähler zwischen TP6 und GND anschließen.	AUTO 98,0MHz	VR4 (X14-)	76,00kHz	(b)
3	STEREO KANAL TRENnung (E Type)	(C) 98,0MHz Stereo Signal 60dBμ(ANT-Eingang)	(B)	AUTO 98,0MHz	VR3 (X14-)	Minimal Klirrfaktor.	
4	ABSTIMM PEGEL	(A) 98,0MHz 0 Hub 18dBμ(ANT-Eingang) 300Ω 14dBμ(ANT-Eingang) 75Ω	—	AUTO oder MONO 98,0MHz	VR1 (X14-)	Den Pegel wiederstand aufdrehen, und dem VR1 Halt geben wobei den FL1(TUNED) anzeiger leuchtet wird.	
MW-EMPfangSABTEILUNG Die MW-Rahmenantenne angebracht lassen. WÄHLER: AM							
(1)	BANDKANTE (Niedrig)	—	Einen Gleichspannungs- messer zwischen TP7(GND) und TP8 anschließen.	—	L3 (X14-)	1,5V	(c)
(2)	BANDKANTE (Hoch)	—	Einen Gleichspannungs- messer zwischen TP7(GND) und TP8 anschließen.	—	TC2 (X14-)	8,0V	(c)
Abstimmungen (1) und (2) mehrere Male wiederholen.							
(3)	HF-ABGLEICH (1)	(D) 600kHz 20dBμ(ANT-Eingang)	(B)	—	L2 (X14-)	Maximal Amplitude und Symmetrie des Oszilloskopbildes.	
(4)	HF-ABGLEICH (2)	(D) 1400kHz 20dBμ(ANT-Eingang)	(B)	—	TC1 (X14-)	Maximal Amplitude und Symmetrie des Oszilloskopbildes.	
Abstimmungen (3) und (4) mehrere Male wiederholen.							
(5)	ZF-UBERTRAGER	(D) 1000kHz 20dBμ(ANT-Eingang)	(B)	—	L6 (X14-)	Maximal Amplitude und Symmetrie des Oszilloskopbildes.	
(6)	ABSTIMM PEGEL	(A) 1000kHz 36dBμ(ANT-Eingang)	—	—	VR2 (X14-)	Den Pegel wiederstand aufdrehen, und dem VR2 Halt geben wobei den FL1(TUNED) anzeiger leuchtet wird.	
AUDIO-ABTEILUNG							
[1]	LEERLAUFSTROM	—	(E) Einen Gleichspannungs- messer über CP1(L) CP2(R) anschließen.	Volume: 0	VR1(L) VR2(R) (X07-)	13mV	(d)





# PC BOARD

## COMPONENT SIDE VIEW



Refer to the schematic diagram for the values of resistors and capacitors.

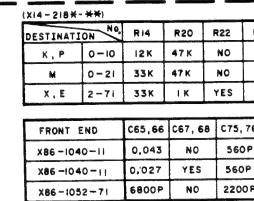


## KR-A46(K)





A perspective view of a 12-pin DIP package. The pins are numbered 1 through 12, starting from the bottom right and going counter-clockwise around the package.

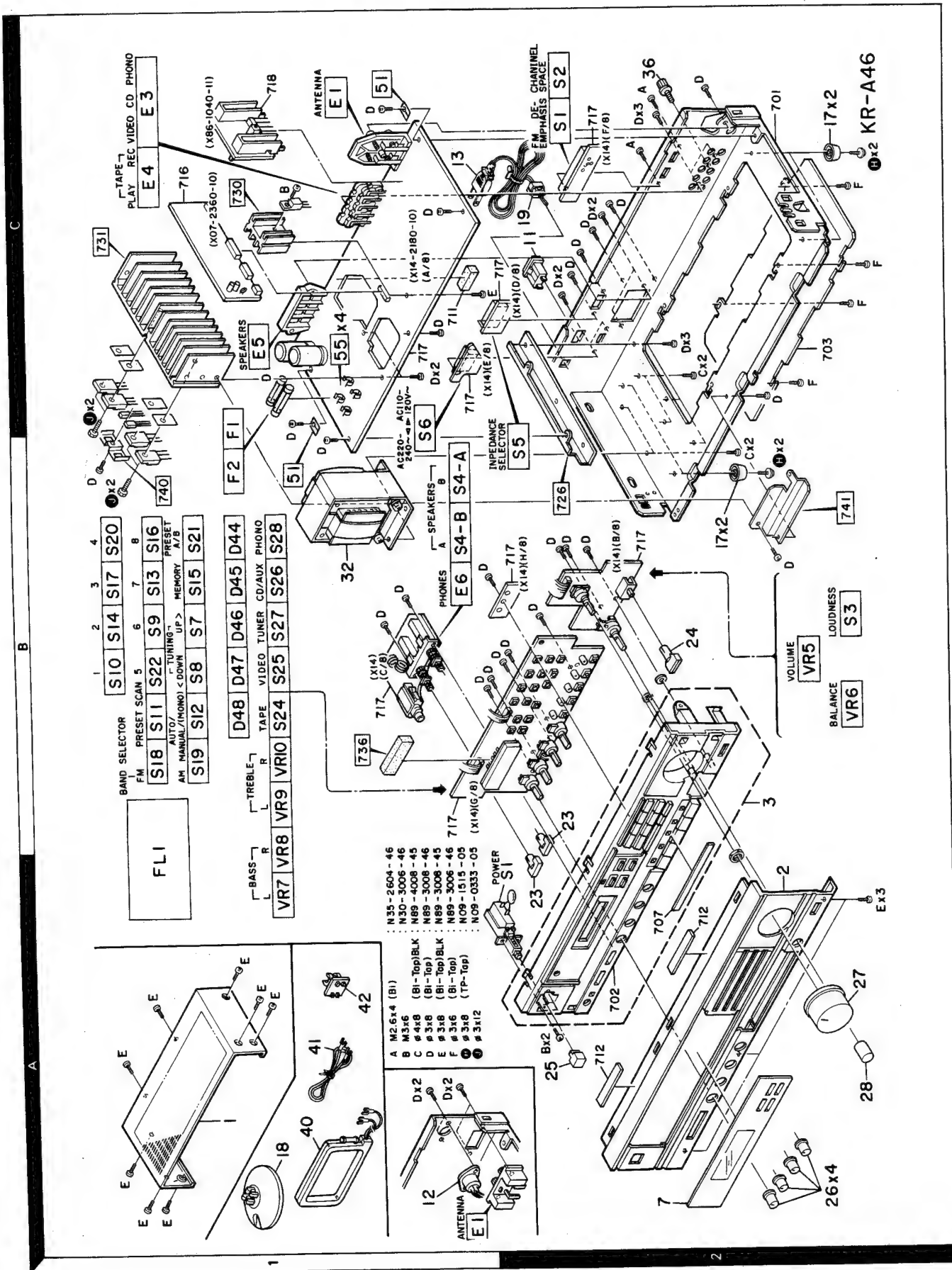


D28	:	RD10ES(B) or HZS10N(B)
D49	:	RBV-402LFA
D50, 51, 56	:	RD6.2ES(B2) or HZS6.2N(B2)
D53	:	RD15ES(B) or HZS15N(B)
D54	:	DSMIAI





## EXPLODED VIEW



Parts with the exploded numbers larger than 700 are not supplied.

## PARTS LIST

× New Parts

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Teile ohne Parts No. werden nicht geliefert.

Ref. No.	Address	New Parts	Parts No.	Description	Destination	Remarks
参照番号	位置	新	部品番号	部品名 / 規格	仕向	備考
KR-A46						
1	1A		A01-1544-01	METALLIC CABINET		
2	2A	*	A20-5187-02	PANEL		
3	2B	*	A22-0684-02	SUB PANEL ASSY		
7	2A	*	B03-2267-03	DRESSING PLATE	K	
			B46-0092-03	WARRANTY CARD	X	
			B46-0096-13	WARRANTY CARD	P	
			B46-0121-03	WARRANTY CARD	E	
			B46-0122-13	WARRANTY CARD		
		*	B50-6859-00	INSTRUCTION MANUAL (ENGLISH)	K	
		*	B50-6860-00	INSTRUCTION MANUAL (ENG, FRE)	PMX	
		*	B50-6861-00	INSTRUCTION MANUAL (E, F, SP, A)	M	
		*	B50-6862-00	INSTRUCTION MANUAL (F, G, D)	E	
			B58-0269-04	CAUTION CARD	K	
			B58-0803-03	CAUTION CARD	E	
△ C1			C91-0023-05	CERAMIC 0.01UF AC250V	M	
△ C1			C91-0647-05	CERAMIC 0.01UF P	KPXE	
△ 11	2C		E03-0041-05	AC OUTLET	KPM	
△ 12	1A		E04-0006-05	RF COAXIAL CABLE RECEPTACLE	XE	
△ 13	1C		E30-0459-05	AC POWER CORD	E	
△ 13	1C		E30-0812-05	AC POWER CORD	M	
△ 13	1C		E30-1341-05	AC POWER CORD	X	
△ 13	1C		E30-2209-05	AC POWER CORD	KP	
		*	H01-7454-04	ITEM CARTON CASE		
			H10-3400-02	POLYSTYRENE FOAMED FIXTURE		
			H25-0181-04	PROTECTION BAG (150X260XD.05)		
			H25-0223-04	PROTECTION BAG (750X350XD.03)		
			H25-0232-04	PROTECTION BAG (235X350XD.03)		
17	2B, 2C		J02-0170-04	FOOT		
18	1A	*	J19-2815-04	ANTENNA HOLDER		
△ 19	2C		J42-0083-05	POWER CORD BUSHING		
			J61-0307-05	WIRE BAND		
23	2A, 2B		K27-1304-04	KNOB (BUTTON) SPEAKERS		
24	2B	*	K27-1644-04	KNOB (BUTTON) LOUDNESS		
25	2A		K29-2001-04	KNOB ASSY (BUTTON) POWER		
26	2A		K29-2506-04	KNOB (BASS, TREBLE)		
27	2A	*	K29-2659-04	KNOB (VOLUME)		
28	2A	*	K29-2661-04	KNOB (BALANCE)		
△ 32	1B	*	L01-7661-05	POWER TRANSFORMER	K	
△ 32	1B	*	L01-7662-05	POWER TRANSFORMER	E	
△ 32	1B	*	L01-7665-05	POWER TRANSFORMER	M	
△ 32	1B	*	L01-7667-05	POWER TRANSFORMER	P	
△ 32	1B	*	L01-7668-05	POWER TRANSFORMER	X	
36	2C		N08-0128-35	BINDING POST (GND)		
H	2B, 2C		N09-1515-05	TAPPING SCREW (Ø3X8)		
△ S1	2A		S40-1073-05	PUSH SWITCH (POWER)		
40	1A		T90-0104-25	LOOP ANTENNA		
41	1A		T90-0121-05	T TYPE ANTENNA		
42	1A		T90-0136-05	ANTENNA ADAPTOR	XE	

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Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
<b>POWER AMPLIFIER UNIT (X07-2360-10)</b>						
C1 ,2			CE04LW1H010M	ELECTR0 1.0UF 50WV		
C3 ,4			CC45FSL1H221J	CERAMIC 220PF J		
C5 ,6		*	CE04LW1A470M	ELECTR0 47UF 10WV		
C7 -12			CC45FSL1H680J	CERAMIC 68PF J		
C9 -12			CC45FSL1H680J	CERAMIC 68PF J		
C13 ,14			CC45FSL1H221J	CERAMIC 220PF J		
C15 ,16			CK45FF1H103Z	CERAMIC 0.010UF Z		
C17 ,18			CK45FB1H222K	CERAMIC 2200PF K		
C19 ,20		*	CE04LW1H101M	ELECTR0 100UF 50WV		
C21		*	CE04LW1C101M	ELECTR0 100UF 16WV		
C22			CE04LW1H2R2M	ELECTR0 2.2UF 50WV		
C23			CE04LW1V100M	ELECTR0 10UF 35WV		
C25 ,26			CC45FSL1H020C	CERAMIC 2.0PF C		
R13 ,14			RD14GB2E221J	FL-PR00F RD 220 J 1/4W		
R17 ,18			RD14GB2E221J	FL-PR00F RD 220 J 1/4W		
R23 ,24			RD14GB2E271J	FL-PR00F RD 270 J 1/4W		
R27 -30			RD14GB2E4R7J	FL-PR00F RD 4.7 J 1/4W		
R31 -34			RD14GB2E221J	FL-PR00F RD 220 J 1/4W		
R35 -38			RD14GB2E2R2J	FL-PR00F RD 2.2 J 1/4W		
R45 ,46			RD14GB2E470J	FL-PR00F RD 47 J 1/4W		
VR1 ,2			R12-1070-05	TRIMMING POT. (1K) IDLE ADJ		
D1 ,2			1SS133	DIODE		
D1 ,2			1SS176	DIODE		
D3 -6			1SS131	DIODE		
D3 -6			1SS178	DIODE		
D7			1SS133	DIODE		
D7			1SS176	DIODE		
Q1 -4			2SA992(F,E)	TRANSISTOR		
Q5 -8			2SC1845(F,E)	TRANSISTOR		
Q9 ,10			2SA992(F,E)	TRANSISTOR		
Q11 ,12			2SC3244	TRANSISTOR		
Q13 ,14			2SA1284	TRANSISTOR		
Q15 ,16			2SC1845(F,E)	TRANSISTOR		
Q17			2SA992(F,E)	TRANSISTOR		
Q18 ,19			2SC945(A) (Q,P)	TRANSISTOR		
<b>RECEIVER UNIT (X14-2180-10)</b>						
D44 -48			B30-0431-05	LED(LN21CPH)		
C1 -4			CK45FF1H103Z	CERAMIC 0.010UF Z		
C5			CK45FF1H223Z	CERAMIC 0.022UF Z		
C6			CO09FS1H391J	POLYSTY 390PF J		
C7			CK45FF1H103Z	CERAMIC 0.010UF Z		
C8			CE04LW1V100M	ELECTR0 10UF 35WV		
C9 -11			CK45FF1H103Z	CERAMIC 0.010UF Z		
C12			CE04LW1C470M	ELECTR0 47UF 16WV		
C13			CK45FF1H103Z	CERAMIC 0.010UF Z		
C14			CC45FSL1H101J	CERAMIC 100PF J		
C15			CE04LW1HR47M	ELECTR0 0.47UF 50WV		
C16 ,17			CK45FF1H223Z	CERAMIC 0.022UF Z		
C18			CE04LW1H2R2M	ELECTR0 2.2UF 50WV		
C19			CE04LW1H3R3M	ELECTR0 3.3UF 50WV		
C20			CK45FF1H223Z	CERAMIC 0.022UF Z		
C21			CF92FV1H273J	MF 0.027UF J		

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C22			CE04LW1V100M	ELECTR0 10UF 35WV		
C23			CK45FF1H223Z	CERAMIC 0.022UF Z		
C24			CK45FF1H103Z	CERAMIC 0.010UF Z		
C25			CE04LW1C470M	ELECTR0 47UF 16WV		
C30			CE04LW1C470M	ELECTR0 47UF 16WV		
C31			C90-1349-05	NP-ELEC 1UF 50WV		
C32			CF92FV1H473J	MF 0.047UF J		
C33 ,34			CK45FF1H103Z	CERAMIC 0.010UF Z		
C35			CC45FCH1H560J	CERAMIC 56PF J		
C36			CC45FCH1H270J	CERAMIC 27PF J		
C37			CK45FF1H103Z	CERAMIC 0.010UF Z		
C38			CC45FSL1H220J	CERAMIC 22PF J		
C39			CK45FF1H103Z	CERAMIC 0.010UF Z		
C50		*	CE04LW1C331M	ELECTR0 330UF 16WV		
C51			C90-1332-05	NP-ELEC 10UF 16WV		
C52			CK45FB1H471K	CERAMIC 470PF K		
C53			CF92FV1H473J	MF 0.047UF J		
C54			CC45FSL1H151J	CERAMIC 150PF J		
C55 ,56			CC45FSL1H151J	CERAMIC 150PF J		
C55 ,56			CF92FV1H122J	MF 1200PF J		
C57 ,58			CE04LW1H2R2M	ELECTR0 2.2UF 50WV		
C59 ,60		*	CE04LW1C220M	ELECTR0 22UF 16WV		
C61			CO09FS1H471J	POLYSTY 470PF J		
C62			CE04LW1H3R3M	ELECTR0 3.3UF 50WV		
C63			CE04LW1H2R2M	ELECTR0 2.2UF 50WV		
C64			CE04LW1HR47M	ELECTR0 0.47UF 50WV		
C65 ,66			CF92FV1H273J	MF 0.027UF J		
C65 ,66		*	CF92FV1H433J	MF 0.043UF J		
C65 ,66			CF92FV1H682J	MF 6800PF J		
C67 ,68			CF92FV1H153J	MF 0.015UF J		
C69			CK45FF1H103Z	CERAMIC 0.010UF Z		
C71 ,72			CE04LW1V100M	ELECTR0 10UF 35WV		
C73 ,74			CC45FSL1H221J	CERAMIC 220PF J		
C75 ,76			CF92FV1H222J	MF 2200PF J		
C75 ,76			CK45FB1H561K	CERAMIC 560PF K		
C77 ,78		*	CE04LW1A101M	ELECTR0 100UF 10WV		
C79 ,80			CF92FV1H123J	MF 0.012UF J		
C81 ,82			CF92FV1H332J	MF 3300PF J		
C83 ,84		*	CE04LW1V4R7M	ELECTR0 4.7UF 35WV		
C87 -94			CK45FB1H471K	CERAMIC 470PF K		
C95 ,96			CF92FV1H333J	MF 0.033UF J		
C97 ,98			CF92FV1H104J	MF 0.10UF J		
C101-104			CK45FB1H561K	CERAMIC 560PF K		
C105,106			CF92FV1H153J	MF 0.015UF J		
C107,108			CF92FV1H683J	MF 0.068UF J		
C109,110			CE04JW1V4R7M	ELECTR0 4.7UF 35WV		
C111,112			CF92FV1H822J	MF 8200PF J		
C113,114			CC45FSL1H220J	CERAMIC 22PF J		
C115,116			CC45FSL1H101J	CERAMIC 100PF J		
C117,118			CF92FV1H333J	MF 0.033UF J		
C119		*	CE04LW1V4R7M	ELECTR0 4.7UF 35WV		
C120			CE04JW1V4R7M	ELECTR0 4.7UF 35WV		
C121,122			CC45FSL1H331J	CERAMIC 330PF J		
C123		*	CE04JW1E330M	ELECTR0 33UF 25WV		
C124			CE04JW1A101M	ELECTR0 100UF 10WV		

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C125 C126-128 C129,130 C131,132 C133,134		*	C91-0937-05 CK45FB1H471K CC45FSL1H470J CK45FF1H103Z C90-1228-05	BACKUP 0.047F 5.5WV CERAMIC 470PF K CERAMIC 47PF J CERAMIC 0.010UF Z ELECTRØ 3300UF 50WV		
C135 C136 C137 C138 C139		*	CK45FB1H102K CE04LW1V100M CE04LW1C221M CE04LW1A470M CE04LW1C101M	CERAMIC 1000PF K ELECTRØ 10UF 35WV ELECTRØ 220UF 16WV ELECTRØ 47UF 10WV ELECTRØ 100UF 16WV		
C140 C141 C142 C144-147 C148		*	CE04LW1V100M CE04LW1A470M CE04LW1H100M CE04LW1C101M CE04LW1V100M	ELECTRØ 10UF 35WV ELECTRØ 47UF 10WV ELECTRØ 10UF 50WV ELECTRØ 100UF 16WV ELECTRØ 10UF 35WV		
C149,150 C151 C152 C153 C154		*	CE04LW1A101M CK45FF1H103Z CE04LW1H010M CK45FF1H473Z CE04EW1H010M	ELECTRØ 100UF 10WV CERAMIC 0.010UF Z ELECTRØ 1.0UF 50WV CERAMIC 0.047UF Z ELECTRØ 1.0UF 50WV		
C156 TC1 ,2			CK45FF1H473Z C05-0303-05	CERAMIC 0.047UF Z CERAMIC TRIMMER CAPACITOR(20PF)		
51 E1 E1 E3 E4	1C 2A 1C 1C 1C	*	E23-0149-05 E20-0231-05 E20-0438-15 E13-0621-05 E13-0446-05	TERMINAL SCREW TERMINAL BOARD(2P)ANT SCREW TERMINAL BOARD (ANT) PHONE JACK(6P) VIDEO,CD,PHONE PHONE JACK(4P) TAPE	XE KPM	
E5 E6	1C 1B		E20-0823-05 E11-0162-05	LOCK TERMINAL BOARD(8P) PHONE JACK(3P) PHONES		
△ F1 △ F1 △ F1 ,2	1B 1B 1B		F06-2021-05 F06-4024-05 F06-2027-05	FUSE (SEMKØ) (250V T2A) FUSE (UL) (250V 4A) FUSE (UL) (250V 2A)	XE KP M	
55 55	1C 1C		J13-0041-05 J13-0054-05	FUSE CLIP FUSE CLIP	KPM XE	
CF1 ,2 CF1 ,2 CF3 CF4 L1			L72-0140-05 L72-0190-05 L72-0096-05 L72-0099-05 L40-1092-14	CERAMIC FILTER CERAMIC FILTER CERAMIC FILTER CERAMIC FILTER SMALL FIXED INDUCTØR(1.0UH,M)	KPM XE	
L2 L3 L4 L5 L6			L31-0509-05 L32-0277-15 L40-1021-14 L30-0439-15 L30-0362-05	MW-RF COIL MW OSCILLATING COIL SMALL FIXED INDUCTØR(1.0MH,K) FM IFT AM IFT		
L7 L8 L9 L10 ,11 X1			L79-0125-05 L40-1092-14 L79-0739-05 L39-0085-05 L77-0573-05	LC FILTER SMALL FIXED INDUCTØR(1.0UH,M) LC FILTER PHASE-COMPENSATION COIL CRYSTAL RESONATOR(4.5MHZ)	XE XE	
X2			L78-0202-05	RESONATOR (400KHZ)		
J	1B,1C		N09-0333-05	TAPPING SCREW (Ø3X12)		

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D41 ,42 D41 ,42 D49 D50 ,51 D50 ,51			1SS133 1SS176 RBV-402LFA HZS6. 2N(B2) RD6. 2ES(B2)	DIODE DIODE DIODE ZENER DIODE ZENER DIODE	KP KP	
D52 D52 D53 D53 D54			1SS133 1SS176 HZS15N(B) RD15ES(B) DSM1A1	DIODE DIODE ZENER DIODE ZENER DIODE DIODE		
D55 D55 D56 D56 D57			HZS24N(B) RD24ES(B) HZS6. 2N(B2) RD6. 2ES(B2) HZS5. 1N(B2)	ZENER DIODE ZENER DIODE ZENER DIODE ZENER DIODE ZENER DIODE		
D57 D58 -60 D58 -60 D61 D61			RD5. 1ES(B2) 1SS133 1SS176 HZS4. 7N(B) RD4. 7ES(B)	ZENER DIODE DIODE DIODE ZENER DIODE ZENER DIODE		
D62 ,63 D62 ,63 FL1 IC1 IC2	1B	*	1SS133 1SS176 FIP8BRM7A LA1265 CX7925B	DIODE DIODE FLUORESCENT INDICATOR TUBE IC(FM/AM TUNER) IC(FREQUENCY SYNTHESIZER PLL)		
IC3 IC4 IC4 IC5 IC6		*	AN7470 M5218P-A NJM4558D-A LC7820 UPD7538AC-041	IC(FM MPX) IC(OP AMP X2) IC(OP AMP X2) IC(ELECTRON CONTROL SWITCH) IC(MICROPROCESSOR)		
Q1 Q2 Q3 Q4 ,5 Q6			2SC1923(R,0) 2SC945(A)(Q,P) 2SC1845(F,E) 2SC945(A)(Q,P) 2SA733(A)(Q,P)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	XE	
Q7 Q8 Q9 ,10 Q11 ,12 Q13 ,14			2SC945(A)(Q,P) 2SA733(A)(Q,P) 2SC3853 2SA1489 2SC1845(F,E)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q15 -18 Q19 -21 Q19 -22 Q23 ,24 Q25			2SC2878 2SA733(A)(Q,P) 2SA733(A)(Q,P) 2SC945(A)(Q,P) 2SC2167	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	KPXE M	
Q26 Q27 Q28 Q29			2SC945(A)(Q,P) 2SC2003(L,K) 2SC945(A)(Q,P) 2SA754(L,K)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
FRONT-END UNIT (X86-1040-11) K, P & M Type						
C1 C2 C3 C4 C5		*	CC41FSL1H060D C93-0012-05 CC41FSL1H100D C93-0012-05 CK41FB1H221K	CYLND CHIP C 6.0PF D CYLND CHIP C 0.01UF M CYLND CHIP C 10PF D CYLND CHIP C 0.01UF M CYLND CHIP C 220PF K		

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C6		*	CC41FSL1H070D	CYLND CHIP C 7.0PF D		
C8			CC41FSL1H020C	CYLND CHIP C 2.0PF C		
C9			CK41FB1H221K	CYLND CHIP C 220PF K		
C10			C93-0012-05	CYLND CHIP C 0.01UF M		
C11		*	CC41FSL1H080D	CYLND CHIP C 8.0PF D		
C12		*	CC41FSL1H010C	CYLND CHIP C 1.0PF C		
C14			C93-0012-05	CYLND CHIP C 0.01UF M		
C16		*	CC41FSL1H080D	CYLND CHIP C 8.0PF D		
C17			CC41FSL1H330J	CYLND CHIP C 33PF J		
C18		*	CC41FSL1H150J	CYLND CHIP C 15PF J		
C19		*	CC41FSL1H010C	CYLND CHIP C 1.0PF C		
C20			CK41FY1E102M	CYLND CHIP C 1000PF M		
C21		*	CC41FSL1H470J	CYLND CHIP C 47PF J		
TC1			C05-0302-05	CERAMIC TRIMMER CAPACITOR(11PF		
L1		*	L31-0551-05	FM-RF COIL		
L2		*	L31-0552-05	FM-RF COIL		
L3		*	L31-0553-05	FM-RF COIL		
L4			L40-1092-16	SMALL FIXED INDUCTOR(1UH,M)		
L7			L32-0318-05	FM OSCILLATING COIL		
T1		*	L30-0427-15	FM IFT		
-			R92-0338-05	CYLND CHIP R 0.0HM		
R1 ,2			RD41FB2B473J	CYLND CHIP R 47K J 1/8W		
R3		*	RD41FB2B470J	CYLND CHIP R 47 J 1/8W		
R4			RD41FB2B331J	CYLND CHIP R 330 J 1/8W		
R5			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R6			RD41FB2B473J	CYLND CHIP R 47K J 1/8W		
R9			RD41FB2B105J	CYLND CHIP R 1.0M J 1/8W		
R11			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R14			RD41FB2B472J	CYLND CHIP R 4.7K J 1/8W		
R15 ,16			RD41FB2B223J	CYLND CHIP R 22K J 1/8W		
R17			RD41FB2B222J	CYLND CHIP R 2.2K J 1/8W		
R18			RD41FB2B224J	CYLND CHIP R 220K J 1/8W		
R19 ,20			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R21			RD41FB2B100J	CYLND CHIP R 10 J 1/8W		
D1		*	KV1310A-3	VARIABLE CAPACITANCE DIODE		
Q1			2SK302(Y,GR)	FET		
Q2		*	2SC2714(B)	TRANSISTOR		
Q4 ,5		*	2SC2714(R,B)	TRANSISTOR		
<b>FRONT-END UNIT (X86-1052-71) X &amp; E Type</b>						
C1			CC41FSL1H060D	CYLND CHIP C 6.0PF D		
C2			C93-0012-05	CYLND CHIP C 0.01UF M		
C3			CC41FSL1H100D	CYLND CHIP C 10PF D		
C4			C93-0012-05	CYLND CHIP C 0.01UF M		
C5			CK41FB1H221K	CYLND CHIP C 220PF K		
C6			CC41FSL1H100D	CYLND CHIP C 10PF D		
C7			CC41FSL1H060D	CYLND CHIP C 6.0PF D		
C8			CC41FSL1H100D	CYLND CHIP C 10PF D		
C9			CK41FB1H221K	CYLND CHIP C 220PF K		
C10			C93-0012-05	CYLND CHIP C 0.01UF M		
C11			CK41FY1E102M	CYLND CHIP C 1000PF M		
C12		*	CC41FSL1H030C	CYLND CHIP C 3.0PF C		
C13			CC41FSL1H100D	CYLND CHIP C 10PF D		
C14			C93-0012-05	CYLND CHIP C 0.01UF M		
C16			CC41FSL1H080D	CYLND CHIP C 8.0PF D		

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C17			CC41FSL1H330J	CYLND CHIP C 33PF J		
C18			CC41FSL1H150J	CYLND CHIP C 15PF J		
C19			CC41FSL1H010C	CYLND CHIP C 1.0PF C		
C20			CK41FY1E102M	CYLND CHIP C 1000PF M		
C21			CC41FSL1H470J	CYLND CHIP C 47PF J		
TC1			C05-0302-05	CERAMIC TRIMMER CAPACITOR(11PF		
L1			L31-0551-05	FM-RF COIL		
L2			L31-0552-05	FM-RF COIL		
L3			L31-0553-05	FM-RF COIL		
L4			L40-1092-16	SMALL FIXED INDUCTOR(1UH,M)		
L5		*	L31-0554-05	FM-RF COIL		
L7			L32-0318-05	FM OSCILLATING COIL		
T1			L30-0427-15	FM IFT		
-			R92-0338-05	CYLND CHIP R 0.0HM		
R1			RD41FB2B473J	CYLND CHIP R 47K J 1/8W		
R2			RD41FB2B104J	CYLND CHIP R 100K J 1/8W		
R3			RD41FB2B470J	CYLND CHIP R 47 J 1/8W		
R4			RD41FB2B331J	CYLND CHIP R 330 J 1/8W		
R5			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R6 ,7			RD41FB2B473J	CYLND CHIP R 47K J 1/8W		
R8 ,9			RD41FB2B104J	CYLND CHIP R 100K J 1/8W		
R11			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R12			RD41FB2B681J	CYLND CHIP R 680 J 1/8W		
R13			RD41FB2B104J	CYLND CHIP R 100K J 1/8W		
R14			RD41FB2B472J	CYLND CHIP R 4.7K J 1/8W		
R15 ,16			RD41FB2B223J	CYLND CHIP R 22K J 1/8W		
R17			RD41FB2B222J	CYLND CHIP R 2.2K J 1/8W		
R18			RD41FB2B224J	CYLND CHIP R 220K J 1/8W		
R19 ,20			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R21			RD41FB2B100J	CYLND CHIP R 10 J 1/8W		
D1 -4			KV1310-4	VARIABLE CAPACITANCE DIODE		
Q1			2SK302(Y,GR)	FET		
Q2		*	3SK131(M,L)	FET		
Q3			2SK302(Y,GR)	FET		
Q4 ,5			2SC2714(R,Q)	TRANSISTOR		

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## SPECIFICATIONS

### Audio Section

#### Power Output

40 watts per channel minimum RMS, both channel driven at 8 ohms from 40 Hz to 20,000 Hz with no more than 0.09% total harmonic distortion.

45 watts per channel minimum RMS, both channel driven at 8 ohms from 1 kHz with no more than 0.09% total harmonic distortion.

<b>Total Harmonic Distortion</b>	
(40 Hz - 20,000 Hz, 8 ohms) .....	0.09% at 40 W
(1 kHz, 8 ohms) .....	0.01% at 40 W
<b>Intermodulation Distortion</b> .....	0.09% at 40 W
<b>Input Sensitivity/Impedance</b>	
PHONO (MM) .....	2.5 mV/47 kohms
CD/AUX, TAPE, VIDEO .....	150 mV/47 kohms
<b>Signal to Noise Ratio</b>	
PHONO (MM) .....	72 dB
CD/AUX, TAPE, VIDEO .....	95 dB
<b>Frequency Response</b>	
PHONO	
(RIAA Standard Curve) .....	20 Hz - 20 kHz, $\pm 0.5$ dB
CD/AUX, TAPE, VIDEO .....	10 Hz - 70 kHz, $\pm 0, -3$ dB

### FM Tuner Section

<b>Tuning Frequency Range</b> .....	87.5 MHz - 108 MHz
<b>Antenna Impedance</b> .....	300 ohms balanced & 75 ohms unbalanced
<b>Usable Sensitivity</b> .....	11.2 dBf (2.0 $\mu$ V)
<b>50 dB Quieting Sensitivity</b>	
MONO .....	17.2 dBf (4 $\mu$ V)
STEREO .....	38.2 dBf (45 $\mu$ V)
<b>Signal to Noise Ratio at 65 dBf</b>	
Mono .....	76 dB
Stereo .....	72 dB
<b>Total Harmonic Distortion at 1,000 Hz</b>	
Mono .....	0.2%
Stereo .....	0.3%

<b>Frequency response</b> .....	30 Hz to 15,000 Hz
	+0.5 dB, -2.5 dB
<b>Stereo Separation</b> .....	40 dB at 1,000 Hz
<b>Selectivity</b> .....	53 dB at 400 kHz
<b>Capture Ratio</b> .....	1.2 dB
<b>Image Rejection Ratio</b> .....	40 dB
<b>IF Rejection Ratio</b> .....	86 dB
<b>Spurious Rejection Ratio</b> .....	80 dB
<b>AM Suppression Ratio</b> .....	57 dB

### AM Tuner Section

<b>Tuning Range</b>	(530 kHz - 1,610 kHz) with the AM tuning interval set at 10 kHz
<b>Usable Sensitivity</b> .....	15 $\mu$ V (440 $\mu$ V/m)
<b>Signal to Noise Ratio</b> .....	50 dB
<b>Selectivity</b> .....	25 dB

### General

<b>Power Requirement</b> .....	120V, 60 Hz
<b>Power Consumption</b> .....	2A... USA Model
<b>AC Outlet</b> .....	Unswitched (200W)
<b>Dimensions</b> .....	W: 420 mm (16-17/32")
	H: 109 mm (4-19/64")
	D: 236 mm (9-19/64")
<b>Weight</b> .....	Net... 4.6 kg (10.1 lb)

### Note:

We follow a policy of continuous advancements in development. For this reason specifications may be changed without notice.

### Note

Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on the Europe (E) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

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